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REVIEW

Ecosystems of the World 16: Ecosystems of Disturbed Ground. Edited by Lawrence R. Walker. 1999. 868 pages. Elselvier Science Press, Amsterdam, The Netherlands.

For many years ecologists have examined the concept of ecological disturbance in relation to natural processes and community dynamics. Some have argued that much of what has been defined as disturbance is in fact an intrinsic part of natural systems. This book is a survey of contemporary topics relating to natural and anthropogenic disturbance, ecological succession, and environmental issues associated with disturbance. There are thirty-three individually authored chapters covering a broad range of interests. A general reading of the text gives the reader not only a sense of the variety of disturbance mechanisms, but also the range of approaches used to study them. The diversity of topics addressed in this volume makes this collection a valuable reference for researchers.

The editor suggests that the contributions be divided into the following categories: natural disturbance, anthropogenic disturbance, processes, and human response. After reading through the chapters it was difficult to delineate between those focusing on anthropogenic versus natural disturbance. Though some processes, such as volcanic and wind disturbance fall clearly under the heading natural disturbance, processes such as fire and erosion can be both natural and anthropogenic in origin. Interesting discussions on the categorization of disturbance as various types including natural and anthropogenic, endogenous and exogenous, and inherent and foreign could be found in many of the chapters.

Central issues such as the definition of the term disturbance in an ecological context are left up to each author resulting in an opportunity for a comparison of divergent views. Many authors cited well-established definitions. The most common of which were based on the "any relatively discreet event in time" concept put forth in the seminal work by Pickett and White "The Ecology of Natural Disturbance and Patch Dynamics." Other authors suggested their own definitions. Both I. K. Bradbury and L. R. Walker suggest definitions that included any process resulting in the loss of biomass. Several authors also suggested definitions based on new growth and colonization opportunities for individuals. An in-depth discussion of the use of the term disturbance can be found at the beginning of the chapter on disturbance in deserts authored by J. A. MacMahon. MacMahon suggests that the use of the "discrete event in time" definition does not adequately address extended climatic disturbances. The ambiguity of the term "disturbance," in relation to spatial and temporal scales, is also discussed by S. T. A. Pickett et al. in their chapter on patch dynamics.

The topics presented are generally discussed in sufficient detail. However, the rationale on how topics were selected for inclusion is unclear. Several chapters are dedicated to specific mechanisms of disturbance including glaciation, erosion, wind, volcanism, and mining. Other ecologically significant disturbance mechanisms such as fire and flood did not receive treatment in their own chapters. Similarly, several ecosystem types were discussed individually including deserts, boreal forests, Mediterranean shrublands, grasslands and savannas, North American wetlands, temperate forests, and urban areas, while others were omitted. A discussion of the criteria for selection in the introduction chapter would have improved an otherwise commendable work.

This book is useful as a tool for exploring divergent points of view on basic ecological questions. It has great value as a reference on a variety of subjects related to ecological disturbance, and would be useful as a supplementary text for students studying environmental issues and basic ecology.

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